OCT 05 1990

GROUNDWATER TECHNOLOGY, INC.

32 Avenue C, Williston, VT 05495
(802) 865-2237

October 3, 1990

Mr. Chuck Schwer
Petroleum Sites Management Section
Agency of Natural Resources
103 South Main Street
Waterbury, VT 05676

Subject: Monthly Status Report: Cheshire Oil Texaco
July 18 to August 22, 1990

Dear Chuck:

Please find enclosed the status report for Cheshire Oil Texaco on Putney Road in Brattleboro, Vermont. This report covers the time period from July 18 to August 22, 1990.

Should you have any questions regarding this information, please contact me at 865-2237.

Sincerely,
GROUNDWATER TECHNOLOGY, INC.

Kent S. Koptiuch
Project Coordinator
Senior Geologist

KSK/eaa
Enclosure

cc: Jim Robertson

GROUNDWATER
TECHNOLOGY, INC.
OIL RECOVERY SYSTEMS
32 Avenue C, Williston, VT 05495 (802) 865-2237

November 8, 1990

Mr. Chuck Schwer
Petroleum Sites Management Section
Agency of Natural Resources
103 South Main Street
Waterbury, VT 05676

Subject: Monthly Status Report: Cheshire Oil Texaco
August 23 to October 31, 1990

Dear Chuck:

Please find enclosed the status report for Cheshire Oil Texaco on Putney Road in Brattleboro, Vermont. This report covers the time period from August 23 to October 31, 1990.

Should you have any questions regarding this information, please contact me at 865-2237.

Sincerely,
GROUNDWATER TECHNOLOGY, INC.

Kent S. Koptiuch
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Senior Geologist

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cc: Jim Robertson

GROUNDWATER
TECHNOLOGY, INC.
OIL RECOVERY SYSTEMS
32 Avenue C, Williston, VT 05495 (802) 865-2237

MONTHLY MONITORING REPORT

NOVEMBER 8, 1990

REPORTING PERIOD
AUGUST 23 TO OCTOBER 31, 1990

CHESHIRE OIL TEXACO
PROJECT #011125525

PUTNEY ROAD, BRATTLEBORO, VERMONT

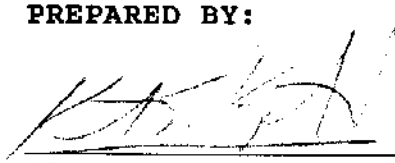
PREPARED FOR:

VERMONT AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PETROLEUM SITES MANAGEMENT SECTION
103 SOUTH MAIN STREET
WATERBURY, VERMONT 05676

SUBMITTED BY:

GROUNDWATER TECHNOLOGY, INC.
32 AVENUE C
WILLISTON, VERMONT 05494

PREPARED BY:



KENT S. KOPTIUCH
PROJECT COORDINATOR
SENIOR GEOLOGIST

REVIEWED BY:

JAMES R. OPPENHEIM
ENVIRONMENTAL ENGINEER
TERRITORY MANAGER

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EXECUTIVE SUMMARY

- Stream sampling on Sargent Brook has revealed low levels of total dissolved hydrocarbons at all three sample points for three consecutive months. The slightly elevated levels demonstrated in the July sampling event can be attributed to a source other than Cheshire Oil

- Separate phase hydrocarbons continue to be recovered via the probe scavenger installed in RW-1. Approximately 210 gallons have been recovered to date; 15 gallons in this reporting period.

- The cone of depression created by the water table depression pump (WTDP) in RW-1 continues to maintain effective influence on both the separate phase and dissolved phase plumes.

- The secondary dissolved hydrocarbon plume created by injection of effluent from the WTDP to the groundwater, via the infiltration gallery, appears to have merged with the primary dissolved plume. An unknown quantity of this water may yet be bypassing the primary dissolved plume, however, peripheral concentrations of dissolved hydrocarbons are less then 1100 ppb.

- Dissolved hydrocarbon concentrations have demonstrated minor fluctuations that indicate a strong correlation with precipitation patterns and subsequent recharge to the groundwater table. The overall lateral extent of the plume has remained stable during this reporting period.

- Separate phase product recovery has decreased significantly during this reporting period; Groundwater Technology is considering methods that will increase our overall yield from RW-.1

1.0 INTRODUCTION

This report encompasses the interpretation of maintenance and monitoring at the Cheshire Oil Texaco site on Putney Road in Brattleboro, Vermont during the period August 23 through October 31, 1990. This site was subject to an uncontrolled underground release of gasoline prior to July 25, 1989. Underground storage tanks at the site were replaced during July of 1989. At that time, separate phase hydrocarbons were observed by State representatives present for the tank pull. Groundwater Technology, Inc. was subsequently contracted by Cheshire Oil Company of Keene, New Hampshire to complete a subsurface investigation on the site.

As a result of the initial subsurface investigation, Groundwater Technology was commissioned to install a product recovery system that utilized groundwater table depression. Separate-phase product is pumped from RW-1, an eight inch diameter recovery well, into an above-ground product recovery tank. Groundwater, as effluent from the water table depression pump (WTDP), is pumped upgradient of the original plume and reintroduced to the subsurface via a 2,000 cubic foot infiltration gallery. Installation of the entire system was completed in February 1990; the recovery system has been on-line and functioning effectively since that time.

Four additional monitoring wells were installed by Groundwater Technology on July 8, 1990. Three of these wells were located to better define the hydraulic impact upon groundwater caused by the infiltration gallery. The fourth well was located downgradient of the separate phase plume to define and quantify the rate of off-site migration, if any, and to aid in documenting hydraulic control of the hydrocarbon plumes through the cone of depression created by the WTDP.

2.0 CHRONOLOGY OF MONITORING REQUIREMENTS

The State of Vermont Petroleum Sites Management Section of the Agency of Natural Resources Department of Environmental Conservation (PSMS) stipulated the following monitoring and reporting requirements for the Cheshire Oil site in Brattleboro:

- Weekly gauging of all monitoring and recovery wells on site with the generation of an accompanying contour map,
- Monthly groundwater sampling and laboratory analysis by modified EPA method 602, and
- Monthly submittal of results and interpretations to the PSMS.

On May 3, 1990, the following requirements were added to the above list:

- Installation of three additional monitoring wells to better define the effects of dissolved hydrocarbons being introduced via the infiltration gallery, and
- Collection and analysis of three stream samples from Sargent Brook; upgradient; at potential discharge points; and downgradient of site.

On August 31, 1990 the PSMS, in written communication to Mr. Jim Robertson of Cheshire Oil, indicated that a reduction in gauging frequency from weekly to monthly would be permitted. The letter stipulates that sampling is to continue on a monthly basis and that system operations shall be checked every other week by Groundwater Technology personnel.

3.0 WATER TABLE CONDITIONS

Appendix A contains weekly gauging data for September 5, September 19, October 1, and October 16, 1990. Figures 3-6 depict the groundwater table configuration on the above dates. The water table depression pump in RW-1 is effectively maintaining a significant cone of depression with a radius of influence of approximately 30 to 70 feet.

Separate-phase petroleum previously detected in GT-1 and GT-5 has reoccurred during this reporting period. Separate phase product has been observed in GT-1 and GT-5 on the following dates: September 19 - GT-1 (0.01 feet), GT-5 (0.02 feet); October 1 - GT-5 (0.05 feet); October 16 - GT-5 (0.01 feet). GT-2, GT-7 and RW-1 continue to exhibit separate phase conditions at all times.

4.0 DISSOLVED AND SEPARATE PHASE CONDITIONS

Appendix B contains analytical results from the September 19 and October 16, 1990 sampling episodes. Figures 7 and 8 depict the dissolved and separate phase hydrocarbon plumes on these respective dates. Appendix B, Table 1, lists a compendium of total dissolved hydrocarbon concentrations in all monitoring wells for September 19 and October 16, 1990.

Dissolved hydrocarbon levels have remained relatively stable throughout this reporting period. GT-1 has seen a decrease of approximately 20,000 ppb, however, the proximity of this well to the separate phase plume could easily lead to a change of this order with only minor fluctuations in the groundwater table. The same can be said of GT-6. GT-5 has remained in separate phase conditions with as much as 0.05 feet of product on October 1, 1990. October 16 gauging data shows this well to contain only 0.01 feet of product; again this variable can be related to minor changes in the potentiometric surface due to both surficial and induced recharge. Groundwater monitoring wells surrounding the infiltration gallery (GT-8, GT-10 and GT-11) have exhibited only minor fluctuations in the total dissolved hydrocarbon concentrations. GT-9, our furthest downgradient well, has shown a slight increase in dissolved levels (45 ppb), however, this is not considered to be of any significance.

A sample could not be obtained form the WTDP effluent port in RW-1 during the October 16 sampling event; scheduling conflicts prohibited Groundwater Technology from sending two technicians to the site on that date. Because the sample port for the RW-1 WTDP is located in a confined space bunker, access was not legally permitable with only one man on site.

5.0 STREAM QUALITY MONITORING

As required by the PSMS, Groundwater Technology has incorporated three stream sampling locations into monthly sampling episodes. Sampling locations include one upstream base; one at a potential discharge point downgradient of the separate phase plume; and one sample point approximately fifty feet further downstream. These same stations will be utilized routinely to maintain analytical integrity in succeeding months.

The first stream samples were obtained from Sargent Brook on June 20, 1990. Subsequent samples were taken on July 17, August 14, September 19, and October 16, 1990. Table 2 and Figure 9 illustrate dissolved hydrocarbon levels in the stream waters on each of these occasions.

Levels in the stream water have been consistently less than 1.0 ppb throughout the past three months. This has confirmed Groundwater Technology's hypothesis that increased dissolved hydrocarbon levels seen in all three samples obtained during the July 17, 1990 event were the result of an unrelated upstream discharge of unknown origin.

6.0 OPERATIONS AND PRODUCT RECOVERY

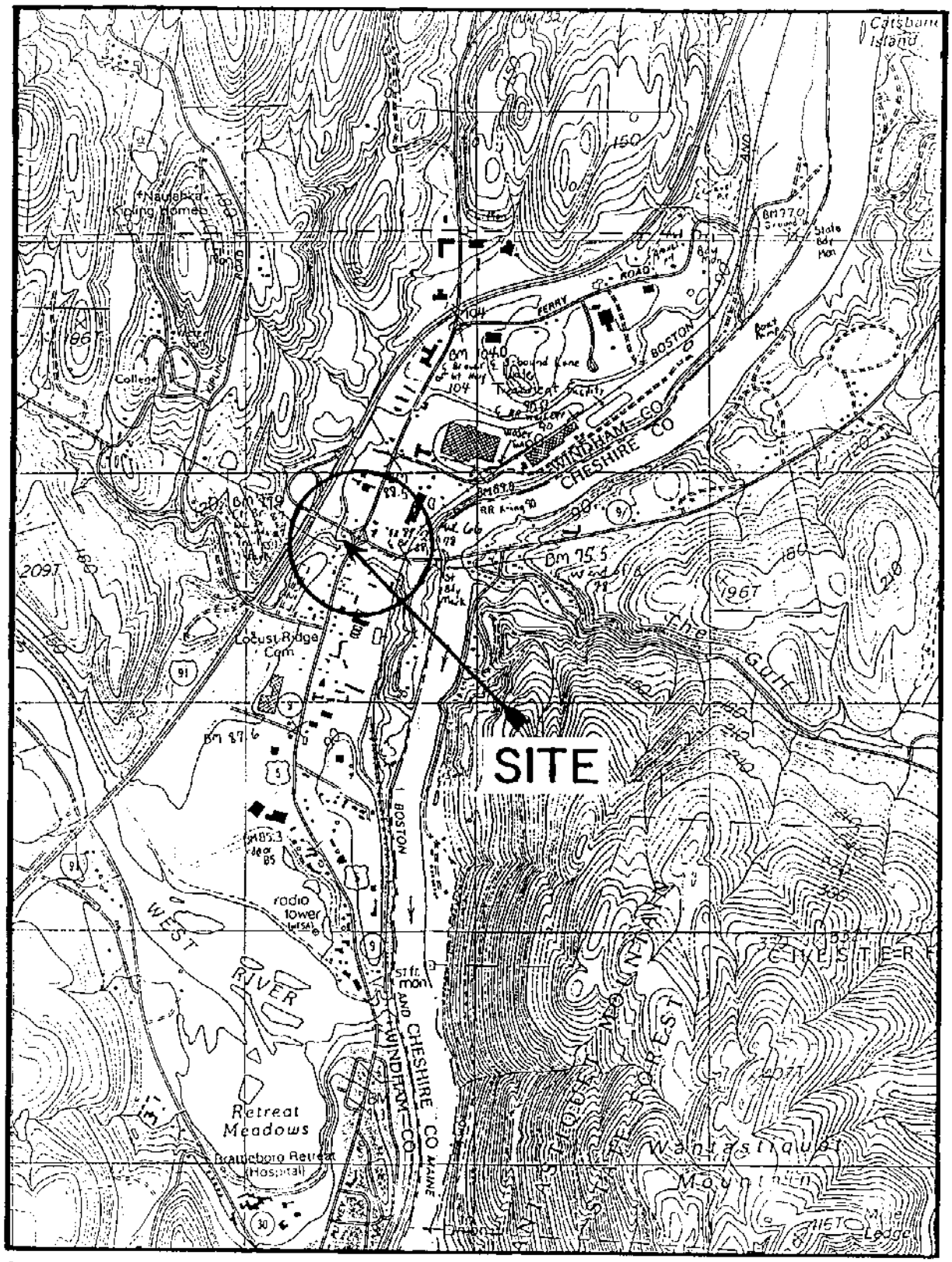
Groundwater Technology's remediation system has been operating continuously during this reporting period. As of October 16, 1990, approximately 210 total gallons of separate phase hydrocarbons have been recovered by the probe scavenger operating in RW-1. This includes approximately 15 gallons recovered during the eight week period from August 22 to October 16.

This represents a significant slowdown in the rate of separate phase product recovery. Product thickness within the separate phase plume has not exhibited any unusual changes during this time period; nor has the cone of depression created by the WTDP in RW-1 changed significantly in configuration. Methods for increasing both the dissolved phase and separate phase yield from RW-1 are currently being considered and will be implemented in the near future.

F I G U R E S

FIG 1

SITE LOCATION MAP



PROJECT: CHESHIRE OIL

PROJECT NO: 112-001-5525

LOCATION: BRATTLEBORO, VT

SOURCE: USGS 7.5'X15' QUADS; BRATTLEBORO, NEWFANE

GROUNDWATER TECHNOLOGY, INC.

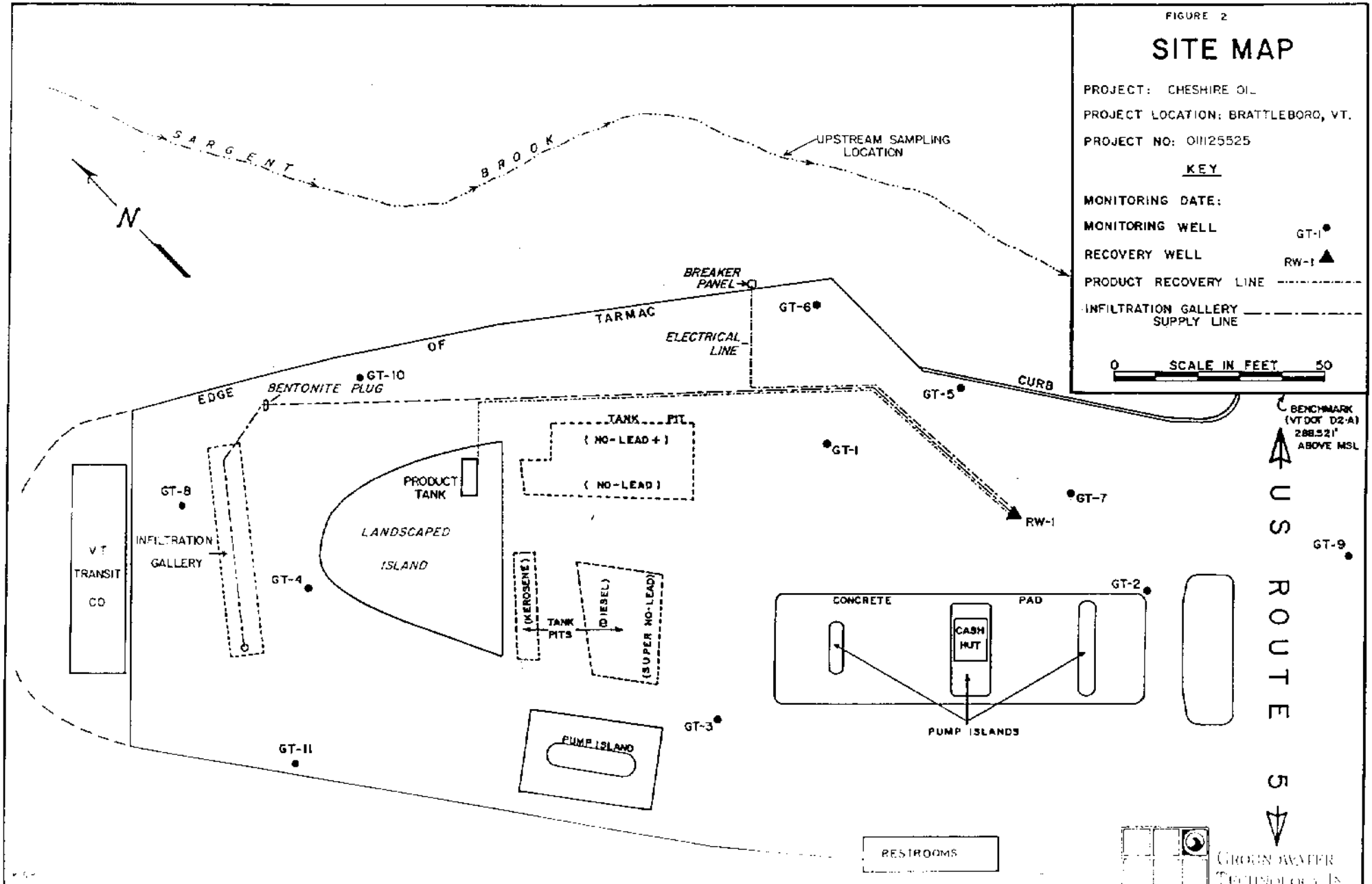


FIGURE 2
SITE MAP
PROJECT: CHESHIRE OIL
PROJECT LOCATION: BRATTLEBORO, VT.
PROJECT NO: 011125525
KEY
MONITORING DATE:
MONITORING WELL GT-1
RECOVERY WELL RW-1
PRODUCT RECOVERY LINE
INFILTRATION GALLERY SUPPLY LINE
0 SCALE IN FEET 50
SARGENT BROOK
UPSTREAM SAMPLING LOCATION
N
BREAKER PANEL
TARMAC
EDGE OF
ELECTRICAL LINE
CURB
GT-6
GT-10
BENTONITE PLUG
GT-5
BENCHMARK (VTDOT D2-A) 288.521' ABOVE MSL
TANK PIT
(NO-LEAD +)
(NO-LEAD)
GT-1
GT-7
RW-1
GT-9
US ROUTE 5
GT-8
VT TRANSIT CO
INFILTRATION GALLERY
PRODUCT TANK
LANDSCAPED ISLAND
GT-4
(KEROSENE)
TANK PITS
(DIESEL)
(SUPER NO-LEAD)
GT-2
CONCRETE PAD
CASH HUT
PUMP ISLANDS
GT-3
PUMP ISLAND
GT-11
RESTROOMS
GROUNDWATER TECHNOLOGY, INC.

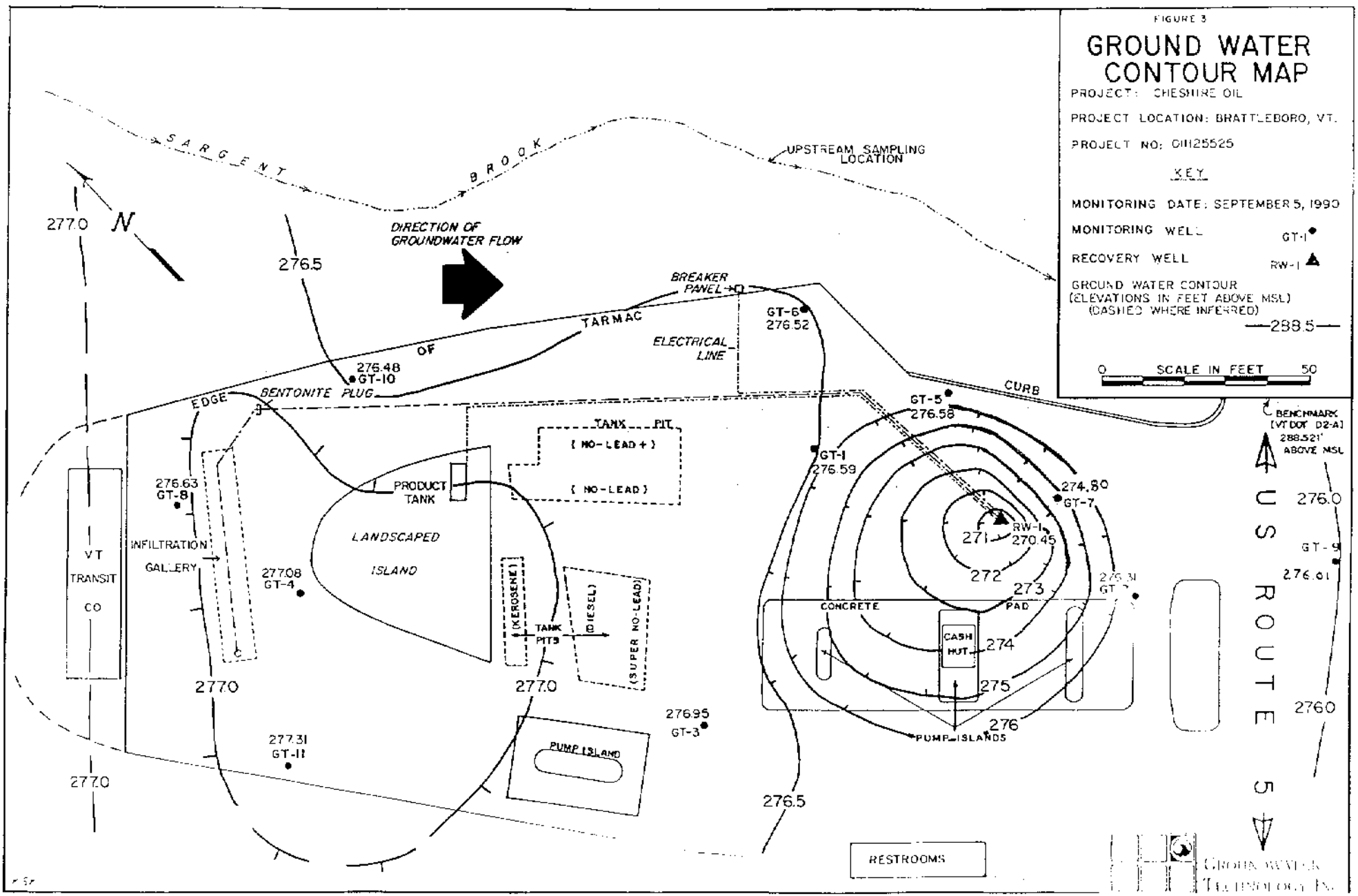


FIGURE 3
GROUND WATER CONTOUR MAP
PROJECT: CHESHIRE OIL
PROJECT LOCATION: BRATTLEBORO, VT.
PROJECT NO: 011125525
KEY
MONITORING DATE: SEPTEMBER 5, 1990
MONITORING WELL GT-1
RECOVERY WELL RW-1
GROUND WATER CONTOUR (ELEVATIONS IN FEET ABOVE MSL) (DASHED WHERE INFERRED)
288.5
0 SCALE IN FEET 50
SARGENT BROOK
UPSTREAM SAMPLING LOCATION
DIRECTION OF GROUNDWATER FLOW
N
277.0
276.5
BREAKER PANEL
GT-6 276.52
TARMAC
ELECTRICAL LINE
EDGE OF
276.48 GT-10
BENTONITE PLUG
CURB
GT-5 276.58
GT-1 276.59
TANK PIT
(NO-LEAD+)
(NO-LEAD)
PRODUCT TANK
276.63 GT-8
INFILTRATION GALLERY
VT TRANSIT CO
LANDSCAPED ISLAND
277.08 GT-4
(KEROSENE)
(DIESEL)
(SUPER NO-LEAD)
TANK PITS
277.0
277.0
277.31 GT-11
277.0
276.95 GT-3
PUMP ISLAND
276.5
274.80 GT-7
RW-1 270.45
271
272
273
274
275
276
CONCRETE PAD
CASH HUT
PUMP ISLANDS
276.31 GT-2
BENCHMARK (VT DOT D2-A) 288.521' ABOVE MSL
276.0
GT-9 276.01
276.0
US ROUTE 5
RESTROOMS
GROUND WATER TECHNOLOGY, INC.

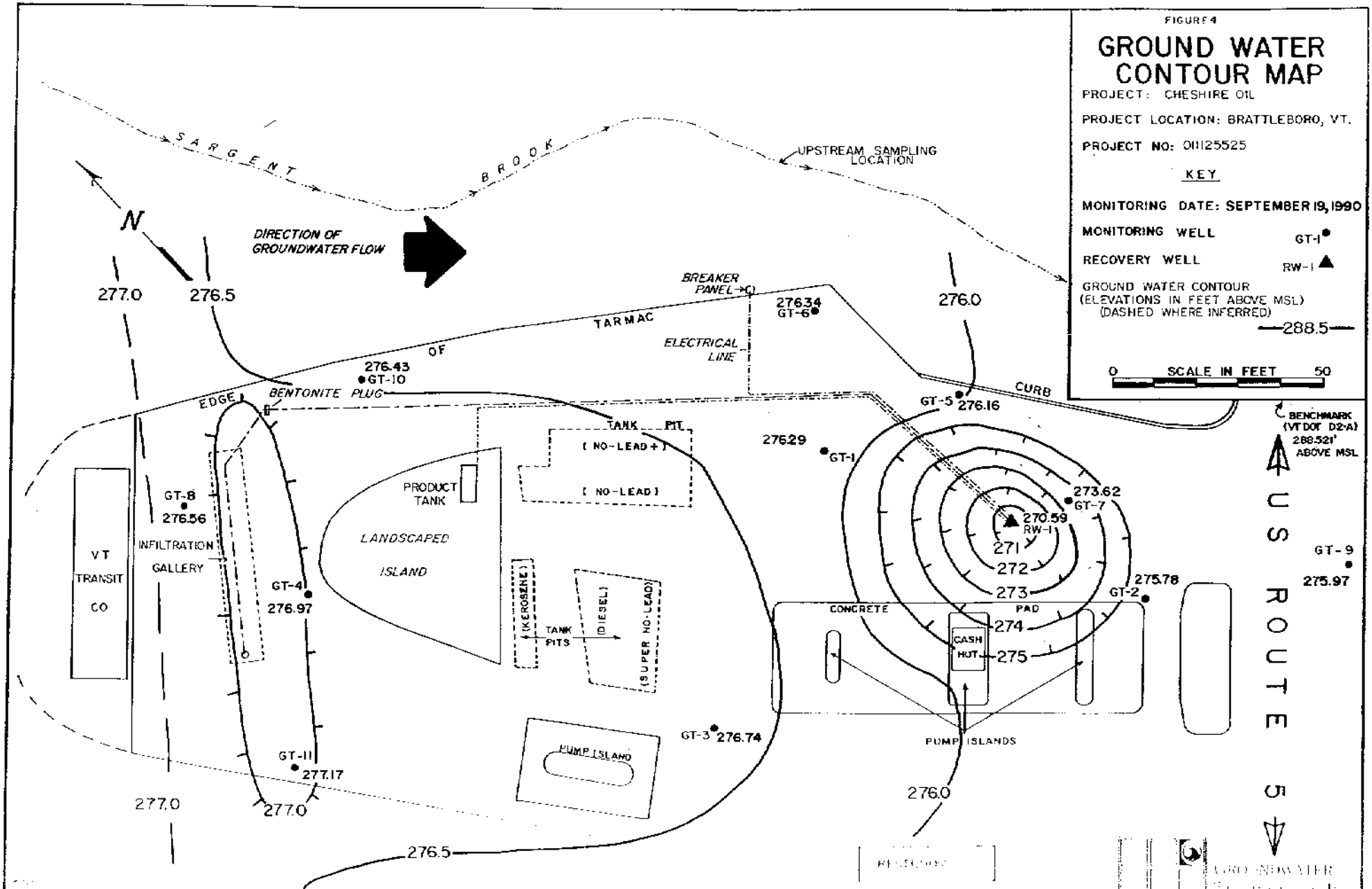


FIGURE 4
GROUND WATER CONTOUR MAP
PROJECT: CHESHIRE OIL
PROJECT LOCATION: BRATTLEBORO, VT.
PROJECT NO: 01125525
KEY
MONITORING DATE: SEPTEMBER 19, 1990
MONITORING WELL GT-1
RECOVERY WELL RW-1
GROUND WATER CONTOUR (ELEVATIONS IN FEET ABOVE MSL) (DASHED WHERE INFERRED)
288.5
0 SCALE IN FEET 50
SARGENT BROOK
UPSTREAM SAMPLING LOCATION
N
DIRECTION OF GROUNDWATER FLOW
277.0
276.5
276.0
BREAKER PANEL
GT-6 276.34
TARMAC
ELECTRICAL LINE
EDGE OF
GT-10 276.43
BENTONITE PLUG
CURB
GT-5 276.16
TANK PIT
(NO-LEAD+)
(NO-LEAD)
GT-1 276.29
BENCHMARK (VT DOT D2-A) 288.521' ABOVE MSL
GT-8 276.56
INFILTRATION GALLERY
VT TRANSIT CO
PRODUCT TANK
LANDSCAPED ISLAND
GT-4 276.97
(KEROSENE)
TANK PITS
(DIESEL)
(SUPER NO-LEAD)
GT-7 273.62
RW-1 270.59
271
272
273
GT-9 275.97
GT-2 275.78
CONCRETE PAD
274
CASH HUT
275
PUMP ISLANDS
GT-3 276.74
PUMP ISLAND
GT-11 277.17
277.0
277.0
276.0
276.5
US ROUTE 5

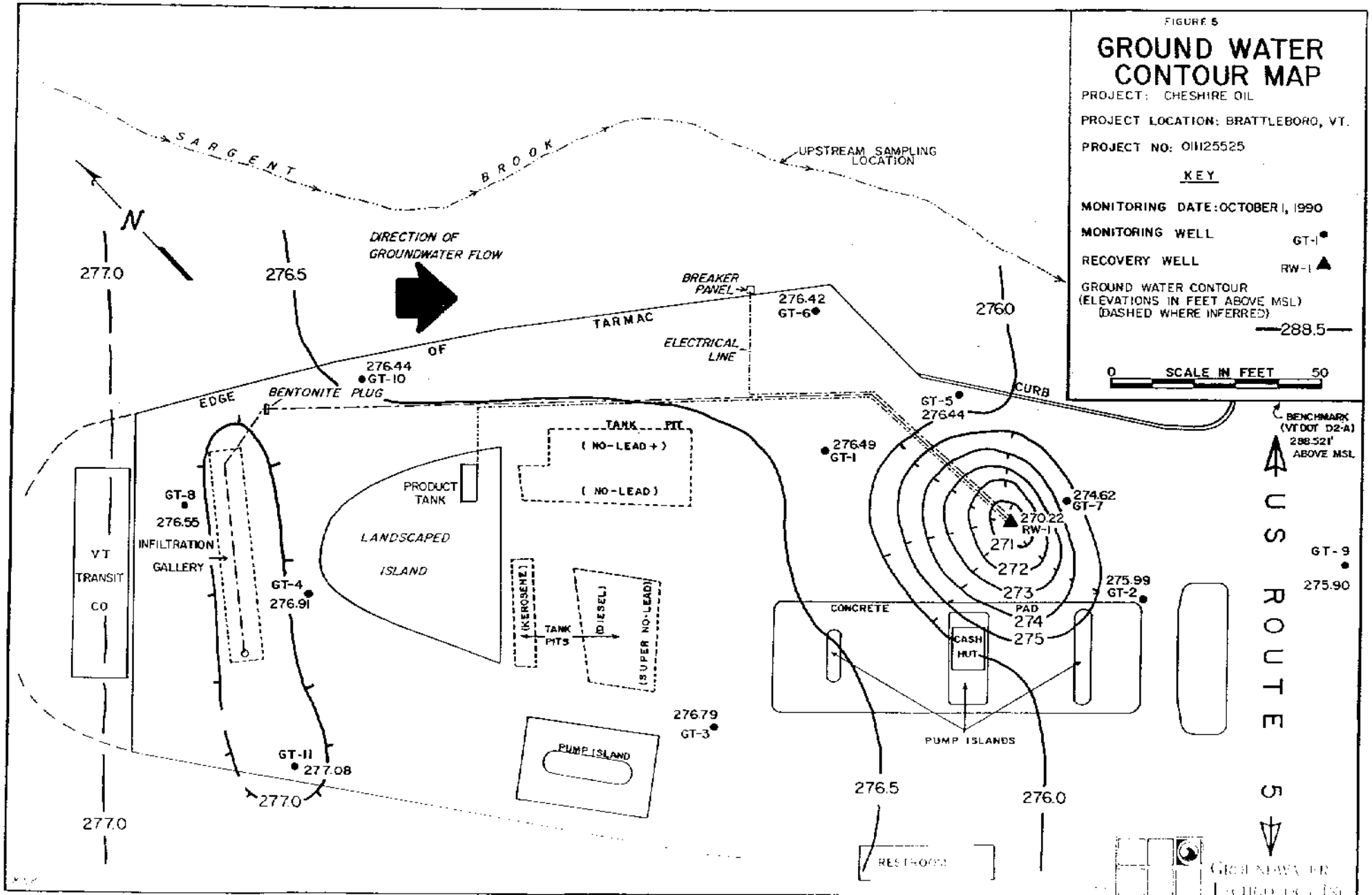


FIGURE 5
GROUND WATER CONTOUR MAP
PROJECT: CHESHIRE OIL
PROJECT LOCATION: BRATTLEBORO, VT.
PROJECT NO: 011125525
KEY
MONITORING DATE: OCTOBER 1, 1990
MONITORING WELL GT-1
RECOVERY WELL RW-1
GROUND WATER CONTOUR (ELEVATIONS IN FEET ABOVE MSL) (DASHED WHERE INFERRED)
288.5
0 SCALE IN FEET 50
SARGENT BROOK
UPSTREAM SAMPLING LOCATION
N
DIRECTION OF GROUNDWATER FLOW
277.0
276.5
BREAKER PANEL
276.42 GT-6
TARMAC
ELECTRICAL LINE
276.44 GT-10
EDGE OF
BENTONITE PLUG
2760
CURB
GT-5 276.44
BENCHMARK (VTDOT D2-A) 288.521' ABOVE MSL
TANK PIT
(NO-LEAD +)
(NO-LEAD)
276.49 GT-1
PRODUCT TANK
LANDSCAPED ISLAND
GT-8 276.55
INFILTRATION GALLERY
VT TRANSIT CO
GT-4 276.91
(KEROSENE)
TANK PITS
(DIESEL)
(SUPER NO-LEAD)
274.62 GT-7
270.22 RW-1
271
272
273
274
275
275.99 GT-2
GT-9 275.90
CONCRETE PAD
CASH HUT
PUMP ISLANDS
276.79 GT-3
PUMP ISLAND
GT-11 277.08
277.0
276.5
276.0
RESTROOMS
U S ROUTE 5

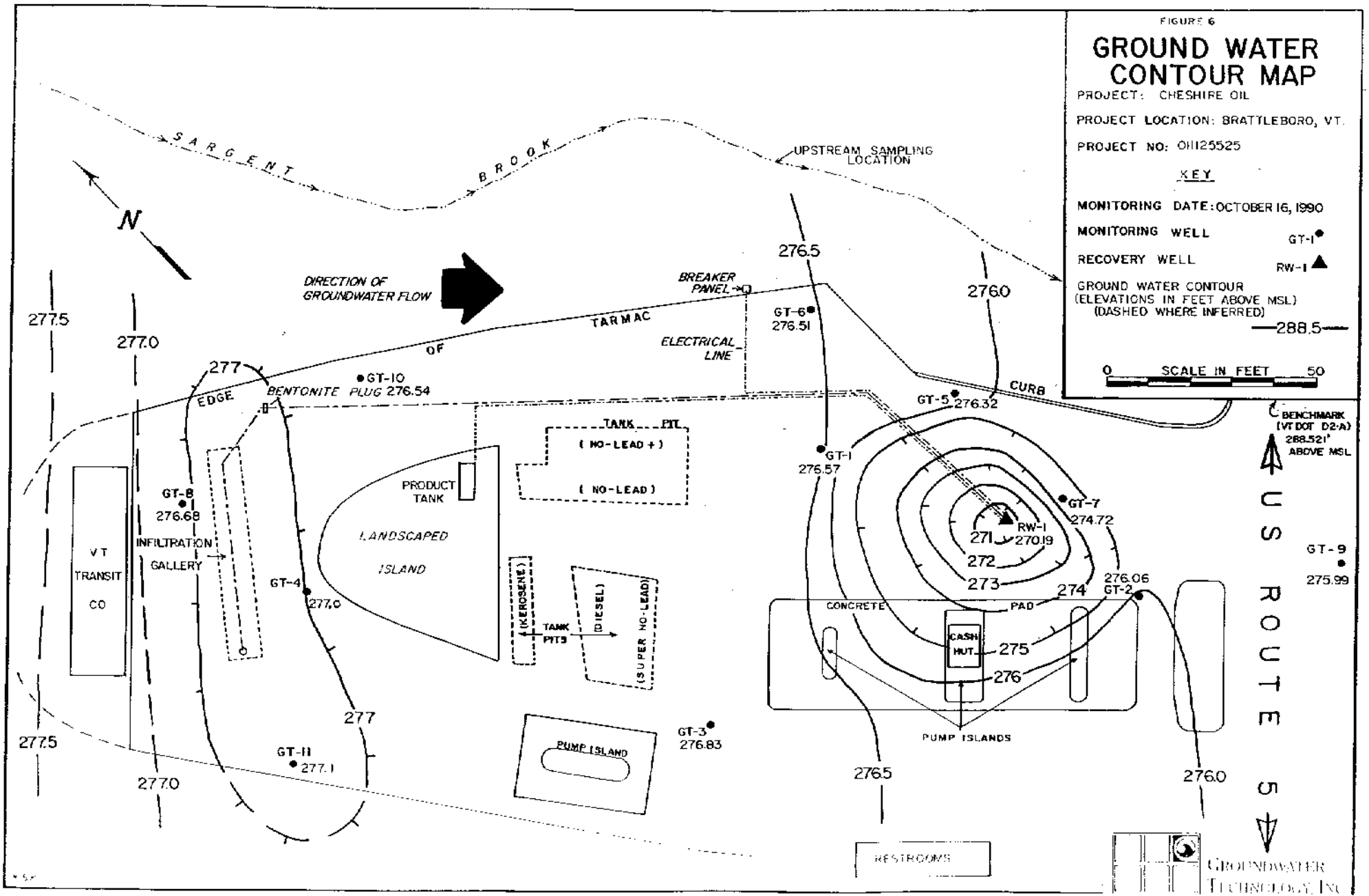


FIGURE 6
GROUND WATER CONTOUR MAP
PROJECT: CHESHIRE OIL
PROJECT LOCATION: BRATTLEBORO, VT.
PROJECT NO: OH125525
KEY
MONITORING DATE: OCTOBER 16, 1990
MONITORING WELL GT-1
RECOVERY WELL RW-1
GROUND WATER CONTOUR (ELEVATIONS IN FEET ABOVE MSL) (DASHED WHERE INFERRED)
288.5
0 SCALE IN FEET 50
SARGENT BROOK
UPSTREAM SAMPLING LOCATION
N
DIRECTION OF GROUNDWATER FLOW
BREAKER PANEL
TARMAC
EDGE OF
ELECTRICAL LINE
CURB
BENTONITE PLUG 276.54
GT-10
GT-6 276.51
GT-5 276.32
GT-1 276.57
GT-7 274.72
RW-1 270.19
GT-2 276.06
GT-9 275.99
GT-8 276.68
GT-4 277.0
GT-11 277.1
GT-3 276.83
BENCHMARK (VT DOT D2-A) 288.521' ABOVE MSL
VT TRANSIT CO
INFILTRATION GALLERY
LANDSCAPED ISLAND
PRODUCT TANK
TANK PIT
(NO-LEAD+)
(NO-LEAD)
(KEROSENE)
TANK PITS
(DIESEL)
(SUPER NO-LEAD)
PUMP ISLAND
CONCRETE PAD
CASH HUT
PUMP ISLANDS
RESTROOMS
276.5
277.0
277
277.5
271
272
273
274
275
276
US ROUTE 5
GROUNDWATER TECHNOLOGY, INC.

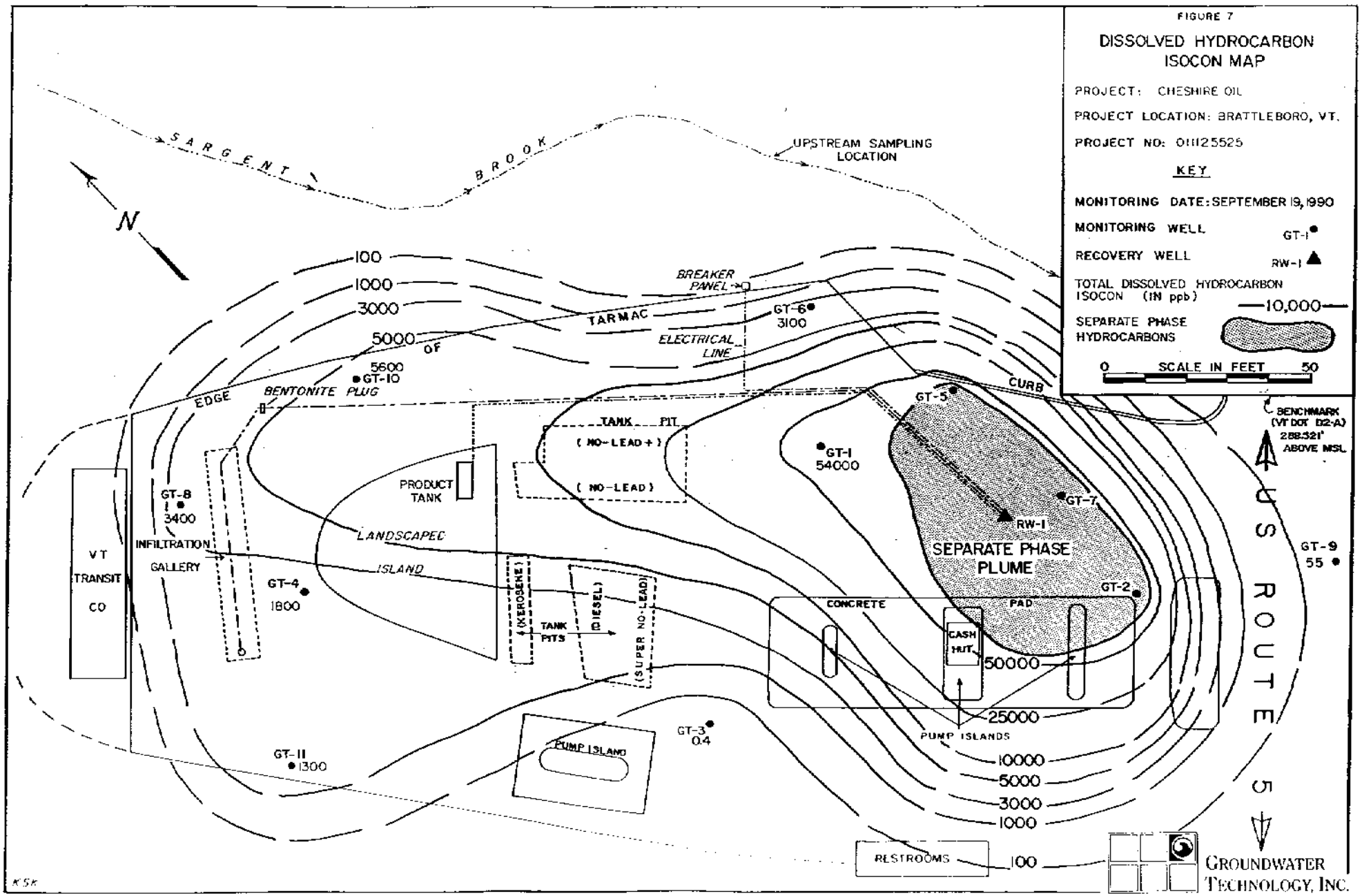


FIGURE 7
DISSOLVED HYDROCARBON ISOCON MAP
PROJECT: CHESHIRE OIL
PROJECT LOCATION: BRATTLEBORO, VT.
PROJECT NO: 011125525
KEY
MONITORING DATE: SEPTEMBER 19, 1990
MONITORING WELL GT-1
RECOVERY WELL RW-1
TOTAL DISSOLVED HYDROCARBON ISOCON (IN ppb) 10,000
SEPARATE PHASE HYDROCARBONS
0 SCALE IN FEET 50
SARGENT BROOK
UPSTREAM SAMPLING LOCATION
N
100
1000
3000
5000
BREAKER PANEL
TARMAC
GT-6 3100
ELECTRICAL LINE
OF
5600
GT-10
EDGE
BENTONITE PLUG
CURB
GT-5
TANK PIT
(NO-LEAD+)
(NO-LEAD)
GT-1 54000
BENCHMARK (VT DOT D2-A) 288.521' ABOVE MSL
PRODUCT TANK
GT-8 3400
GT-7
RW-1
SEPARATE PHASE PLUME
LANDSCAPED ISLAND
INFILTRATION GALLERY
VT TRANSIT CO
GT-4 1800
GT-9 55
GT-2
CONCRETE PAD
(KEROSENE)
TANK PITS
(DIESEL)
(SUPER NO-LEAD)
CASH HUT
50000
25000
PUMP ISLANDS
GT-3 0.4
PUMP ISLAND
GT-11 1300
10000
5000
3000
1000
US ROUTE 5
RESTROOMS
100
KSK
GROUNDWATER TECHNOLOGY, INC.

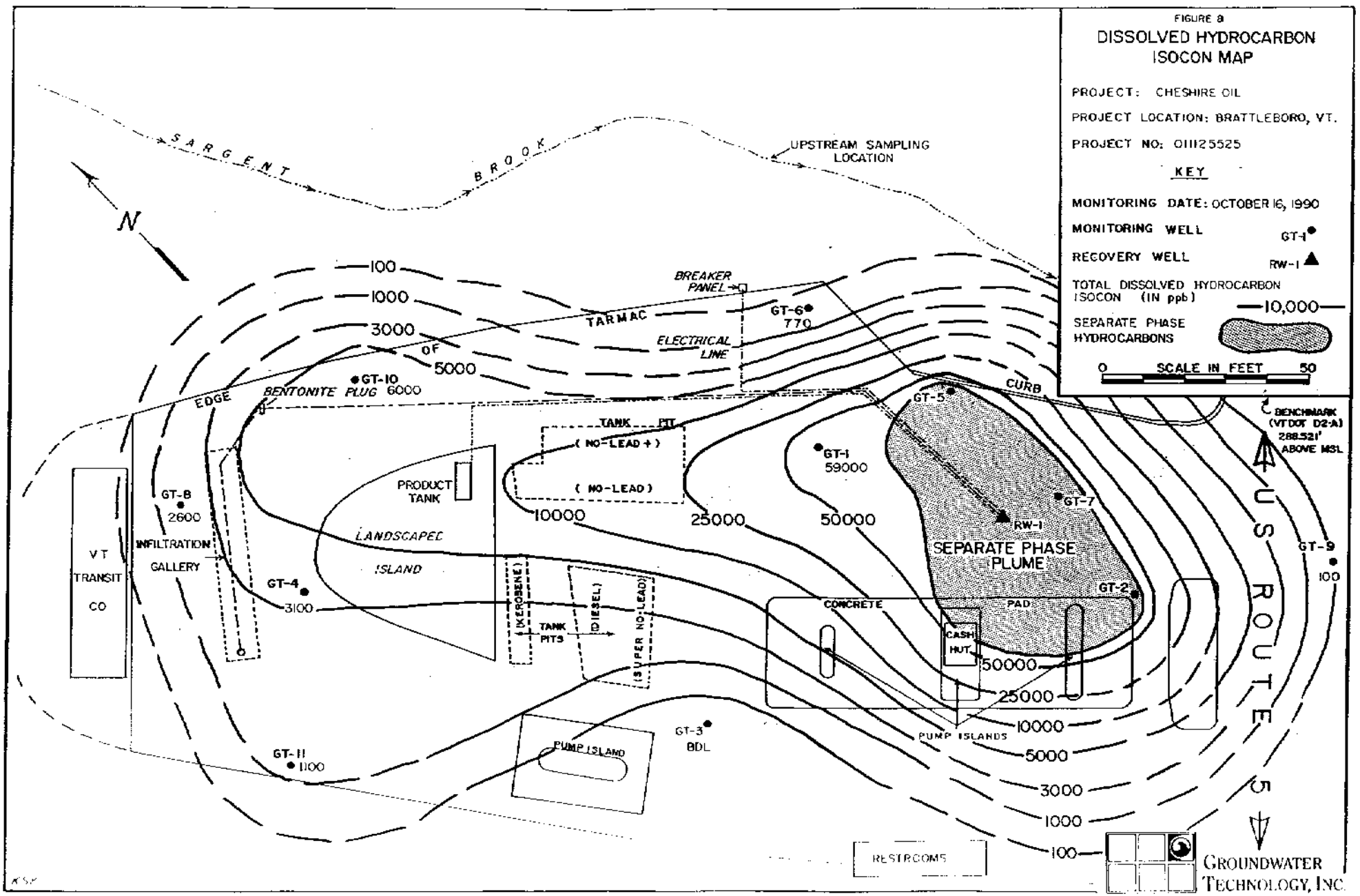
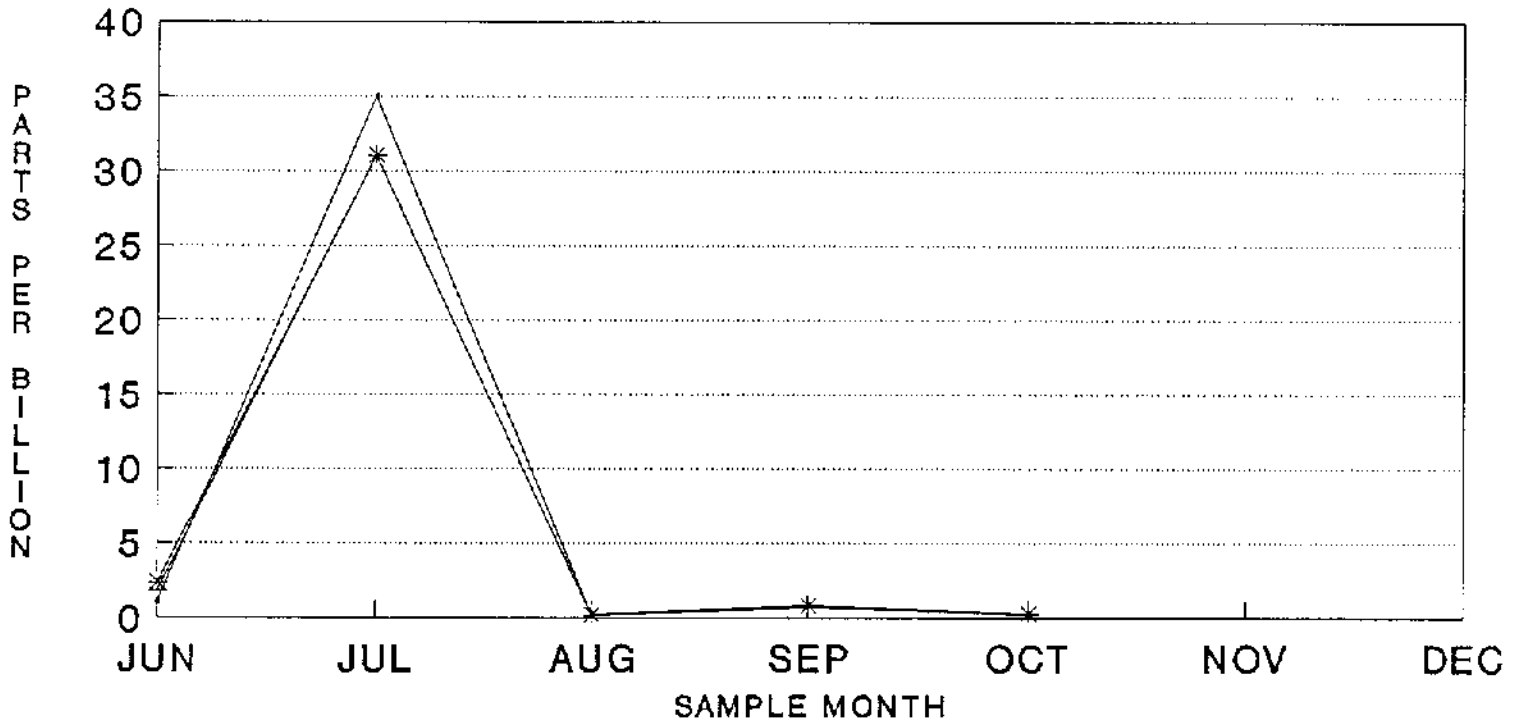


FIGURE 8
DISSOLVED HYDROCARBON ISOCON MAP
PROJECT: CHESHIRE OIL
PROJECT LOCATION: BRATTLEBORO, VT.
PROJECT NO: 011125525
KEY
MONITORING DATE: OCTOBER 16, 1990
MONITORING WELL GT-1
RECOVERY WELL RW-1
TOTAL DISSOLVED HYDROCARBON ISOCON (IN ppb) 10,000
SEPARATE PHASE HYDROCARBONS
0 SCALE IN FEET 50
SARGENT BROOK
UPSTREAM SAMPLING LOCATION
N
100
1000
3000
5000
BREAKER PANEL
TARMAC
ELECTRICAL LINE
GT-6 770
EDGE OF
BENTONITE PLUG
GT-10 6000
CURB
GT-5
BENCHMARK (VTDOT D2-A) 288.521' ABOVE MSL
TANK PIT
(NO-LEAD+)
(NO-LEAD)
GT-1 59000
PRODUCT TANK
GT-8 2600
INFILTRATION GALLERY
LANDSCAPED ISLAND
10000
25000
50000
GT-7
RW-1
SEPARATE PHASE PLUME
GT-9 100
VT TRANSIT CO
GT-4 3100
(KEROSENE)
TANK PITS
(DIESEL)
(SUPER NO-LEAD)
CONCRETE PAD
CASH HUT
GT-2
50000
25000
10000
PUMP ISLANDS
5000
3000
1000
100
GT-3 BDL
PUMP ISLAND
GT-11 100
RESTROOMS
U.S. ROUTE 5
GROUNDWATER TECHNOLOGY, INC.

FIGURE 9

STREAM QUALITY MONITORING
SARGENT BROOK, 1990
TOTAL DISSOLVED HYDROCARBONS



PROJECT: CHESHIRE OIL, BRATTLEBORO, VT.
PROJECT # 011125525

GROUNDWATER TECHNOLOGY, INC.

APPENDIX A

GROUNDWATER GAUGING DATA

PROJECT: CHESHIRE OIL
DATE: Sept. 5, 1990
EQUIPMENT:
METHOD: E.I.P.

PROJECT #: 01112-5525
LOCATION: Brattleboro, VT
OPERATOR: J. Roman

WELL ID	T.O.C. ELEV.	DEPTH TO WATER	DEPTH TO PRODUCT	PRODUCT THICK	PRODUCT THICK X 0.88	ADJUST WATER DEPTH	CORR WATER ELEV
GT-1	283.92	7.33					276.59
GT-2	285.62	9.34	9.08	0.26	0.2288	9.3088	276.3112
GT-3	285.6	8.65					276.95
GT-4	289.16	12.08					277.08
GT-5	283.84	7.26					276.58
GT-6	283.74	7.22					276.52
GT-7	284.57	10.05	7.75	2.3	2.024	9.774	274.796
GT-8	290.7	14.07					276.63
GT-9	284.63	8.62					276.01
GT-10	288.66	12.18					276.48
GT-11	289.72	12.41					277.31
RW-1	282.82	12.55	11.05	1.5	1.32	12.37	270.45

COMMENTS: * symbol = sheen

PROJECT: CHESHIRE OIL
DATE: September 19, 1990
EQUIPMENT:
METHOD: E.I.P.

PROJECT #: 01112-5525
LOCATION: Brattleboro, VT
OPERATOR: D. Kiefner
J. Roman

WELL ID	T.O.C. ELEV.	DEPTH TO WATER	DEPTH TO PRODUCT	PRODUCT THICK	PRODUCT THICK X 0.88	ADJUST WATER DEPTH	CORR WATER ELEV
GT-1	283.92	7.63	*				276.29
GT-2	285.62	9.88	9.51	0.37	0.3256	9.8356	275.7844
GT-3	285.6	8.86					276.74
GT-4	289.16	12.19					276.97
GT-5	283.84	7.68	7.66	0.02	0.0176	7.6776	276.1624
GT-6	283.74	7.4					276.34
GT-7	284.57	11.29	8.42	2.87	2.5256	10.9456	273.6244
GT-8	290.7	14.14					276.56
GT-9	284.63	8.66					275.97
GT-10	288.66	12.23					276.43
GT-11	289.72	12.55					277.17
RW-1	282.82	12.28	11.87	0.41	0.3608	12.2308	270.5892

COMMENTS: * symbol = sheen

PROJECT: CHESHIRE OIL
DATE: October 1, 1990
EQUIPMENT:
METHOD: E.I.P.

PROJECT #: 01112-5525
LOCATION: Brattleboro, VT
OPERATOR: J. Roman

WELL ID	T.O.C. ELEV.	DEPTH TO WATER	DEPTH TO PRODUCT	PRODUCT THICK	PRODUCT THICK X 0.88	ADJUST WATER DEPTH	CORR WATER ELEV
GT-1	283.92	7.43					276.49
GT-2	285.62	9.65	9.42	0.23	0.2024	9.6224	275.9976
GT-3	285.6	8.81					276.79
GT-4	289.16	12.25					276.91
GT-5	283.84	7.41	7.36	0.05	0.044	7.404	276.436
GT-6	283.74	7.32					276.42
GT-7	284.57	10.11	8.8	1.31	1.1528	9.9528	274.6172
GT-8	290.7	14.15					276.55
GT-9	284.63	8.73					275.9
GT-10	288.66	12.22					276.44
GT-11	289.72	12.64					277.08
RW-1	282.82	12.71	11.82	0.89	0.7832	12.6032	270.2168

COMMENTS: * symbol = sheen

PROJECT: CHESHIRE OIL
DATE: October 16, 1990
EQUIPMENT:
METHOD: E.I.P.

PROJECT #: 01112-5525
LOCATION: Brattleboro, VT
OPERATOR: J. ROman

WELL ID	T.O.C. ELEV.	DEPTH TO WATER	DEPTH TO PRODUCT	PRODUCT THICK	PRODUCT THICK X 0.88	ADJUST WATER DEPTH	CORR WATER ELEV
GT-1	283.92	7.35					276.57
GT-2	285.62	9.57	9.45	0.12	0.1056	9.5556	276.0644
GT-3	285.6	8.77					276.83
GT-4	289.16	12.16					277
GT-5	283.84	7.52	7.51	0.01	0.0088	7.5188	276.3212
GT-6	283.74	7.23					276.51
GT-7	284.57	10.03	8.49	1.54	1.3552	9.8452	274.7248
GT-8	290.7	14.02					276.68
GT-9	284.63	8.64					275.99
GT-10	288.66	12.12					276.54
GT-11	289.72	12.61					277.11
RW-1	282.82	12.75	11.72	1.03	0.9064	12.6264	270.1936

COMMENTS: * symbol = sheen

APPENDIX B

LABORATORY ANALYSIS

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northeast Region
Meadowbrook Industrial Park
Milford, NH 03055
(603) 672-4835
(603) 673-8105 (FAX)

Client Number: 011125525
Project ID: Not Provided
Work Order Number: N0-09-550

October 3, 1990

Kent Koptiuch
Groundwater Technology, Inc.
32 Avenue C
Williston, VT 05495

Dear Mr. Koptiuch:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 9/20/90 under chains-of-custody records 30237 and 30238.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project QA/QC criteria unless otherwise stated in the footnotes.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Mark M. Emmons
Gas Chromatography Manager

Client Number: 011125525
Project ID: Not Provided
Work Order Number: N0-09-550

Table 1

ANALYTICAL RESULTS

Purgeable Aromatics in Water
Modified EPA Method 602[a]

GTEL Sample Number		09550-01	09550-02	09550-03	09550-04
Client Identification		GT1	GT3	GT4	GT6
Date Sampled		9/19/90	9/19/90	9/19/90	9/19/90
Date Analyzed		9/29/90	9/29/90	9/29/90	9/29/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.2	**3700**	**0.4**	**290**	**120**
Toluene	0.5	**13000**	< 0.5	**1.5**	**250**
Ethyl Benzene	0.8	**1700**	< 0.8	**15**	**99**
Xylenes (total)	1.7	**12000**	< 1.7	**3.6**	**510**
BTEX (total)	--	**30000**	**0.4**	**310**	**980**
Misc. Aliphatics (C_4-C_{12})	15	**17000**	< 15	**1500**	**910**
Misc. Aromatics (C_8-C_{10})	10	**6800**	< 10	**23**	**1200**
Total Hydrocarbons	--	**54000**	**0.4**	**1800**	**3100**
Detection Limit Multiplier		100	1	1	10

a Federal Register, Vol. 49, October 26, 1984. Method modified to include additional compounds.

GTEL ENVIRONMENTAL LABORATORIES, INC

Client Number: 011125525
Project ID: Not Provided
Work Order Number: N0-09-550

Table 1 (continued)

ANALYTICAL RESULTS

Purgeable Aromatics in Water
Modified EPA Method 602[a]

GTEL Sample Number		09550-05	09550-06	09550-07	09550-08
Client Identification		GT8	GT9	GT10	GT11
Date Sampled		9/19/90	9/19/90	9/19/90	9/19/90
Date Analyzed		9/29/90	9/29/90	9/29/90	9/29/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.2	**340**	**0.3**	**1200**	**3.7**
Toluene	0.5	**6.6**	**4.6**	**7.6**	< 0.5
Ethyl Benzene	0.8	< 4.0	**1.5**	**45**	< 0.8
Xylenes (total)	1.7	**9.3**	**6.9**	**22**	< 1.7
BTEX (total)	--	**360**	**13**	**1300**	**3.7**
Misc. Aliphatics (C_4-C_{12})	15	**3000**	**42**	**4300**	**1300**
Misc. Aromatics (C_8-C_{10})	10	**29**	< 10	< 100	< 10
Total Hydrocarbons	--	**3400**	**55**	**5600**	**1300**
Detection Limit Multiplier		5	1	10	1

a Federal Register, Vol. 49, October 26, 1984. Method modified to include additional compounds.

Client Number: 011125525
Project ID: Not Provided
Work Order Number: N0-09-550

Table 1 (continued)

ANALYTICAL RESULTS

Purgeable Aromatics in Water
Modified EPA Method 602[a]

GTEL Sample Number		09550-09	09550-10	09550-11	09550-12
Client Identification		RW-1	R-UP	R-MID	R-DWN
Date Sampled		9/19/90	9/19/90	9/19/90	9/19/90
Date Analyzed		9/29/90	9/29/90	9/29/90	9/29/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.2	**3200**	**0.9**	**0.7**	**0.8**
Toluene	0.5	**3700**	< 0.5	< 0.5	< 0.5
Ethyl Benzene	0.8	**390**	< 0.8	< 0.8	< 0.8
Xylenes (total)	1.7	**1800**	< 1.7	< 1.7	< 1.7
BTEX (total)	--	**9100**	**0.9**	**0.7**	**0.8**
Misc. Aliphatics (C_4-C_{12})	15	**9500**	< 15	< 15	< 15
Misc. Aromatics (C_8-C_{10})	10	**710**	< 10	< 10	< 10
Total Hydrocarbons	--	**19000**	**0.9**	**0.7**	**0.8**
Detection Limit Multiplier		50	1	1	1

a Federal Register, Vol. 49, October 26, 1984. Method modified to include additional compounds.

GTEL ENVIRONMENTAL LABORATORIES, INC.

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Northeast Region
Meadowbrook Industrial Park
Milford, NH 03055
(603) 672-4835
(603) 673-8105 (FAX)

Client Number: 011125525
Project ID: Not Applicable
Work Order Number: N0-10-523

October 30, 1990

Kent Koptiuch
Groundwater Technology, Inc.
32 Avenue C
Williston, VT 05495

Dear Mr. Koptiuch:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 10/17/90 under chain-of-custody records 30510 and 30512.

A formal Quality Assurance / Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Mark M. Emmons
Gas Chromatography Manager

Client Number: 011125525
Project ID: Not Applicable
Work Order Number: N0-10-523

Table 1

ANALYTICAL RESULTS

Purgeable Aromatics in Water
Modified EPA Method 602[a]

GTEL Sample Number		10523-01	10523-02	10523-03	10523-04
Client Identification		GT-1	GT-3	GT-4	GT-6
Date Sampled		10/16/90	10/16/90	10/16/90	10/16/90
Date Analyzed		10/24/90	10/24/90	10/24/90	10/27/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.2	2800	< 0.2	310	78
Toluene	0.5	11000	< 0.5	8.0	7.4
Ethyl Benzene	0.8	1400	< 0.8	42	5.2
Xylenes (total)	1.7	16000	< 1.7	15	29
BTEX (total)	--	31000	--	380	120
Misc. Aliphatics (C_4-C_{12})	15	14000	< 15	2600	530
Misc. Aromatics (C_8-C_{10})	10	14000	< 10	95	120
Total Hydrocarbons	--	59000	--	3100	770
Detection Limit Multiplier		100	1	2	1

a Federal Register, Vol. 49, October 26, 1984. Method modified to include additional compounds.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Client Number: 011125525
Project ID: Not Applicable
Work Order Number: N0-10 523

Table 1(continued)

ANALYTICAL RESULTS

Purgeable Aromatics in Water
Modified EPA Method 602[a]

GTEL Sample Number		10523-05	10523-06	10523-07	10523-08
Client Identification		GT-8	GT-9	GT-10	GT-11
Date Sampled		10/16/90	10/16/90	10/16/90	10/16/90
Date Analyzed		10/24/90	10/24/90	10/25/90	10/24/90
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.2	**260**	< 0.2	**1000**	**3.9**
Toluene	0.5	**4.3**	**0.8**	**17**	< 0.5
Ethyl Benzene	0.8	**4.3**	< 0.8	**64**	< 0.8
Xylenes (total)	1.7	< 3.4	**3.2**	**27**	< 1.7
BTEX (total)	--	**270**	**4.0**	**1100**	**3.9**
Misc. Aliphatics (C_4-C_{12})	15	**2300**	**54**	**4800**	**1100**
Misc. Aromatics (C_8-C_{10})	10	< 20	**43**	**140**	< 10
Total Hydrocarbons	--	**2600**	**100**	**6000**	**1100**
Detection Limit Multiplier		2	1	10	1

a Federal Register, Vol. 49, October 26, 1984. Method modified to include additional compounds.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Client Number: 011125525
Project ID: Not Applicable
Work Order Number: N0-10-523

Table 1(continued)

ANALYTICAL RESULTS

Purgeable Aromatics in Water
Modified EPA Method 602[a]

GTEL Sample Number		10523-09	10523-10	10523-11	--
Client Identification		RIV-UP	RIV-MID	RIV-DWN	--
Date Sampled		10/16/90	10/16/90	10/16/90	--
Date Analyzed		10/24/90	10/24/90	10/24/90	--
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.2	**0.3**	**0.3**	**0.3**	--
Toluene	0.5	< 0.5	< 0.5	< 0.5	--
Ethyl Benzene	0.8	< 0.8	< 0.8	< 0.8	--
Xylenes (total)	1.7	< 1.7	< 1.7	< 1.7	--
BTEX (total)	--	**0.3**	**0.3**	**0.3**	--
Misc. Aliphatics (C_4-C_{12})	15	< 15	< 15	< 15	--
Misc. Aromatics (C_8-C_{10})	10	< 10	< 10	< 10	--
Total Hydrocarbons	--	**0.3**	**0.3**	**0.3**	--
Detection Limit Multiplier		1	1	1	--

a Federal Register, Vol. 49, October 26, 1984. Method modified to include additional compounds.

GTEL ENVIRONMENTAL LABORATORIES, INC.

APPENDIX C

TABLES

TABLE 1

TOTAL DISSOLVED HYDROCARBONS (ppb)

PROJECT: CHESHIRE OIL

MONITORING WELL	MAY 16	JUNE 20	JULY 17	AUG 14	SEPT 19	OCT 16
GT-1	SP	72,000	66,000	79000	54000	59000
GT-2	SP	SP	SP	SP	SP	SP
GT-3	BDL	32	1.1	0.4	0.4	BDL
GT-4	3,000	9,400	3,400	1700	1800	3100
GT-5	100,000	35,000	18,000	SP	SP	SP
GT-6	370	870	540	3100	3100	770
GT-7	SP	SP	SP	SP	SP	SP
GT-8	*	2,500	1,800	4400	3400	2600
GT-9	*	290	230	74	55	100
GT-10	*	9,900	3,100	8200	5600	6000
GT-11	*	86	950	1800	1300	1100
RW-1	16,000	18,000	11,000	18000	19000	N/S

NOTES: PROJECT NO: 011125525
SP = SEPARATE PHASE
BDL= BELOW DETECTION LEVEL
* = NOT YET DRILLED
N\S= NOT SAMPLED ON THIS DATE

GROUNDWATER TECHNOLOGY, INC.

TABLE 2

STREAM QUALITY MONITORING
SARGENT BROOK, 1990
PROJECT: CHESHIRE OIL, BRATTLEBORO, VERMONT
PROJECT NUMBER 011125525
TOTAL DISSOLVED HYDROCARBONS IN PARTS PER BILLION

		SAMPLING POINT		
	1990	RR-UP	RR-MID	RR-DOWN
SAMPLE DATE	6-20	1.0	1.8	2.3
	7-17	35.0	31.0	31.0
	8-14	0.3	0.2	0.2
	9-19	0.9	0.7	0.8
	10-16	0.3	0.3	0.3

GROUNDWATER TECHNOLOGY, INC.